

REMARKS:

This application has been carefully studied and amended in view of the Office Action dated June 9, 2005. The undersigned attorney wishes to thank Examiner Vo for the courtesies extended during the course of a personal interview on August 4, 2005.

Claim 1 has been amended along the lines discussed at the interview. In this amendment claim 1 now deletes reference to the "means" which was the basis of the Section 112 rejection. It was understood from the interview that as now amended claim 1 would comply with 35 USC §112.

Claim 1 has also been amended to point out that the first and second layers are made of different foamable materials.

Claim 52 has been added to point out that the first and second layers of parent claim 1 are in direct contact with each other.

The indication of allowability of claims 30-34 is noted with appreciation.

Reconsideration is respectfully requested of the rejection of claims 1, 3-14, 18 and 36 as anticipated by Nomura and of claims 15-17 as obvious over Nomura and finally of claims 2 and 35 as obvious of Nomura in view of Daniel. It is also submitted that newly added claim 52 is patentable over Nomura whether taken alone or in view of other prior art.

As discussed during the interview the present invention is an improvement over conventional panel stiffeners which shrink when

cured. When there is paint on the substrate such as a vehicle door patterns would show according to the reduced strain on the substrate. The present invention relates to a reinforcement for a substrate in the form of a laminate which has one layer which is a rigid foam upon curing and which is secured to a second layer which is a compliant foam upon curing. The second layer is secured to the substrate. When the laminate cures the compliant layer absorbs shrinkage due to the cure. To address the problem of paint read through which causes shadowing or metal distortion the laminate of this invention has holes through all of the layers to help reduce shrinkage strains during curing.

The intent of claim 1.

Applicant's parent patent and allowed claims 30-34 are directed to the practice of the invention where the first and second layers are in their expanded foam condition. As discussed at the interview the claims under rejection are directed to the laminate in the form it might be sold to the ultimate user prior to the layers being expanded into the rigid foam and into the compliant foam condition. Claim 1 refers to the layers as "a first layer of foamable material capable upon activation of becoming a rigid reinforcement foam" and "a second layer of foamable material capable upon activation of becoming a compliant foam". It is applicant's position that these are structural limitations. The first layer is made of a material which has the capability of

becoming a rigid foam but would not become a compliant foam. Conversely, the second layer has the capability of becoming a compliant foam, but not a rigid foam. These characteristics are physical attributes of the two layers and should be considered in comparing the invention to the prior art and in particular to Nomura.

Nomura does not disclose a laminate having holes through "foamable" layers.

Nomura relates to a multi-layer acoustic ceiling panel having a number of different layers. One set of layers is the polyethylene foam layer 2 which is secured to sheet 4. A second layer is polyethylene foam layer 3. A metal lath is sandwiched between the two foams 2,3. As stated in col. 2, lines 59-64 the two polyethylene foams 2,3 are separately bored and the metal lath 1 is sandwiched between the two foams. Accordingly, what Nomura is directed to is a laminate wherein the various layers 2,3 are already in their foamed condition and the holes are punched through the foam layers before the laminate is formed. This is in contrast to claim 1 which is directed to a laminate where the layers already having holes therethrough when the layers are still "foamable", i.e., prior to becoming expanded foam layers.

The layers of claim 1 have different physical characteristics.

During the interview it was pointed out to Examiner Vo that claim 1 required the first and second layers to be capable of having different physical characteristics upon activation or heat curing and that this differed from Nomura where both of the layers 2 and 3 were made of the same material. Examiner Vo indicated her position that because of the difference in the size of the holes, the layers 2 and 3 would have different characteristics.

Claim 1 defines the first and second layers to have a specific relationship with regard to the carrier layer. It is not simply that one layer will become a rigid foam and the other layer will become a compliant foam. In that respect the first layer which is the layer capable of becoming rigid is secured to the carrier layer and would thereby be intermediate between the carrier layer and the second layer which is the compliant layer. As discussed above one foamable layer has the capability of becoming a rigid foam but not a compliant foam. The other foamable layer, however, has the capability of becoming a compliant foam but not a rigid foam. These are physical characteristics.

There is no disclosure in Nomura with regard to either of the two polyethylene layers being, for example, compliant (as distinct from rigid) and what affect the size of the holes would have with regard to the relative compliancy or rigidity of the two layers. Note, for example, that Nomura states (col. 2, lines 19-20) that

the foams 2,3 would be 1.0 - 8.0mm thick. This is a relatively wide range. The specific thickness of each layer would also be a factor in determining the characteristics of the foam layers. However, there are no guidelines in Nomura as to what thickness, or what hole dimensions, etc. should be used in order to have one of the layers rigid and the other layer compliant, much less the desirability for the two layers to have those distinctly different characteristics and the relationship of those layers with respect to a carrier layer.

The layers of Claim 1 are made of different materials.

Claim 1, as now amended, differs from claim 1 in the form it was discussed at the interview. In that regard, claim 1 now defines the first and second layers as being made of different foamable materials.

In Nomura the two foams 2,3 are made of the same material, namely, polyethylene. The intent of utilizing the two polyethylene foams 2,3 is to provide a "ceiling panel with such a structure [which] is so rigid and sound-isolating as to make an auto ceiling with an excellent effect of absorbing the noise". (col. 2, lines 59-68) Since the two polyethylene foams are independently formed and "separately bored" (col. 2, lines 59-60), the holes in one of the two polyethylene foams is made larger than the holes in the other polyethylene foam to maximize the occurrence of through holes wherein holes from one foam communicate with holes from the other

foam. This is referred to in col. 2, lines 29-36 of Nomura which points out that "Thus the panel is a pasted combination of the ceiling side polyethylene foam 3 with large holes 6 and the interior side polyethylene foam 2 with small holes 5 and in such a panel the probability of through holes being produced is higher than in a combination of polyethylene foams with identical small holes; at least the small holes 5 which overlap the large holes 6 become through ones". Nomura also points out the advantage of "a ceiling panel with as many through holes as to ensure a good effect of sound absorption can be yielded without obstruction of through holes". (col. 3, line 67 to col. 4, line 2) Accordingly, the purpose of the different size holes in the layers of Nomura is to maximize the probability of forming through holes. There is no disclosure or suggestion of using different foam materials or of having different size holes in one foam as compared to the other foam in order to create differences in the physical characteristics of rigidity and compliancy. Indeed, because of the small dimensions of the foam layers and holes and because both layers are made from the same material, it is questionable whether any significant differences in rigidity or compliancy would result from the two polyethylene foam layers of Nomura. Instead, by using two layers made from the same materials Nomura is attempting to obtain a panel which is rigid and sound isolating.

In contrast to Nomura claim 1 now clearly points out that the two layers are made of different foamable materials. The selection of the different materials lends itself to the laminate (after the foamable layers are cured) having one foam layer which is rigid and the other foam layer which is compliant. Since Nomura is not concerned with these properties and since Nomura does not disclose using different materials for the two layers, for this reason alone claim 1 should be allowed over Nomura.

The Nomura foam layers are separated by a metal lath.

Claim 1 further recites the second layer being secured to the first layer. As disclosed in the specification there is no need, indeed it is not preferred to have any intermediate layer between these two foamable layers. In contrast Nomura requires a metal lath 1 to be between the two polyethylene layers 2,3. Specifically, Nomura indicates "Sandwiching of a metal lath facilitates thermal fusion of polyethylene foams with small holes and with large holes". (col. 3, lines 64-66)

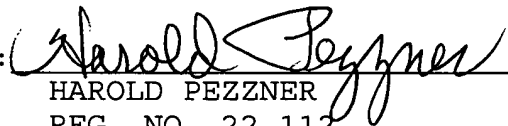
Newly added claim 52 is dependent on claim 1 but is more limited in that it requires the two layers being in direct contact with each other. As noted in the Interview Summary such feature would render the claim "unobvious over the Nomura reference because the metal lath is a required component..."

Conclusion

In view of the above remarks and amendments it is respectfully submitted that claim 1 and its dependent claims are patentable over Nomura whether taken alone or in combination with other prior art and that this application should be passed to issue.

Respectfully Submitted,

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